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EXAMINER	
DAILEY, THOMAS J	
ART UNIT	**PAPER NUMBER**
2152	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,100	BANERJEE ET AL.	
	Examiner	Art Unit	
	Thomas J. Dailey	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/22/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-19 are pending in this application.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 13-16 and are rejected under 35 U.S.C.101 because the claimed invention is directed to non-statutory subject matter. As provided on page 9 of the specification, a computer readable medium includes transmission media. Claims drawn to components involving signals encoded with functional descriptive material do not fall within any of the categories of statutory subject matter as set forth in 35 U.S.C. 101, and are therefore, ineligible for protection.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 17 recites, "if one socket queue is full" (line 8). Socket queue lacks antecedent basis rendering the claim indefinite. The examiner will interpreted it as being one socket.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 3-4, 6-7, 9-10, 12, and 17-19, are rejected under 35 U.S.C. 102(e) as being anticipated by Béliveau et al (US Pat. 6,731,598), hereafter "Beliveau."

9. As to claims 1 and 7, Beliveau discloses a method and a system for carrying out a method for redirecting connection requests at an operating system kernel level (Abstract and column 4, lines 55-61) comprising:

receiving, from an application setting up a cluster of servers providing a same service, a socket option call with a list of sockets for informing an operating system kernel that all of the sockets in said list of sockets will provide said same service (column 7, lines 62-column 8, line 17, a socket list is maintained which contains server socket information including service related information, e.g.

there was the list of all FTP servers in the cluster of servers each having its own socket in the list);

setting up all of said sockets in said list of sockets to reference each other in said operating system kernel (column 8, lines 9-17, all sockets reference each other as they all perform the same service and are bound to the same port number); and

responsive to receiving an incoming connection request for a first socket from said list of sockets that is full, redirecting said connection request to a second socket in said list of sockets that is not full, such that said operating system kernel redirects said connection request to said second socket providing said same service as said first socket (column 8, lines 13-17, if a socket if full, inherently, since the system assigns services based upon processor load or delays, the system will assign the service to a second socket).

10. As to claims 17, 18, and 19, Beliveau discloses a method, a computer program product, and a system for carrying out a method for redirecting connection requests at an operating system kernel level (Abstract and column 4, lines 55-61) comprising:

requesting, by an application, for a kernel to provide a plurality of sockets (column 7, lines 62-column 8, line 13);

generating a socket call option to bind said plurality of sockets to a particular port number (inherent in column 8, lines 5-13); and

assigning each of said plurality of sockets to one from among a plurality of slave servers spawned by said application to provide a same service, such that said plurality of sockets are setup such that if one socket queue is full when a request is received said request is redirected to another socket providing said same service (column 8, lines 9-17, if a socket if full, inherently, since the system assigns services based upon processor load or delays, the system will assign the service to a second socket).

11. As to claims 3 and 9, Beliveau discloses responsive to receiving said socket option call, binding all of said sockets in said list of sockets to a same port number (column 8, lines 5-17, in the FTP example any incoming port 21 request is bound to the FTP servers in the socket list).

12. As to claims 4 and 10, Beliveau discloses each of said sockets in said list of sockets is distributed among said cluster of servers providing said same service (column 8, lines 13-17).

13. As to claims 6 and 12, Beliveau discloses:

binding all of said sockets in said list of sockets to a different internet protocol address (column 8, lines 5-13, different servers inherently have different IP addresses); and

responsive to redirecting said incoming connection request from said first socket to said second socket, replacing a requested internet protocol address to which said first socket is bound with a replacement internet protocol address to which said second socket is bound (column 8, lines 8-13).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 1-4, 6-10, 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beliveau, and in view of what was well known in the art at the time of the invention.

16. As to claims 1 and 7, Beliveau discloses a method and a system for carrying out a method for redirecting connection requests at an operating system kernel level (Abstract and column 4, lines 55-61) comprising:

receiving, from an application setting up a cluster of servers providing a same service, a socket option call with a list of sockets for informing an operating system kernel that all of the sockets in said list of sockets will provide said same

service (column 7, lines 62-column 8, line 17, a socket list is maintained which contains server socket information including service related information, e.g. there was the list of all FTP servers in the cluster of servers each having its own socket in the list);

setting up all of said sockets in said list of sockets to reference each other in said operating system kernel (column 8, lines 9-17, all sockets reference each other as they all perform the same service and are bound to the same port number); and

responsive to receiving an incoming connection request for a first socket redirecting said connection request to a second socket in said list of sockets that such that said operating system kernel redirects said connection request to said second socket providing said same service as said first socket (column 8, lines 13-17, since the system assigns services based upon processor load the system may assign the service to a second socket).

However, Beliveau may not explicitly or implicitly disclose that the redirection of the incoming connection request occurs if the first socket is full and a second socket is not. Even, if this is the case, it would have been obvious to one of ordinary skill in the art that, given Beliveau's teaching that redirection is assigned based upon round robin selection or may be enhanced to consider processor load, delays, or other factors (column 8, liens 13-17), that such a method of load distribution could and should be used. Therefore, Official Notice (MPEP

2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau with a well known practice in the art (i.e., if a resource is busy, and there is a list of resources that can accomplish the same task, utilizing that list to find one that can do it and is not busy) in order to more effectively balance the load in Beliveau's distributed computing system.

17. As to claims 17, Beliveau discloses a method, a computer program product, and a system for carrying out a method for redirecting connection requests at an operating system kernel level (Abstract and column 4, lines 55-61) comprising:

requesting, by an application, for a kernel to provide a plurality of sockets (column 7, lines 62-column 8, line 13);

generating a socket call option to bind said plurality of sockets to a particular port number (inherent in column 8, lines 5-13); and

assigning each of said plurality of sockets to one from among a plurality of slave servers spawned by said application to provide a same service, such that said request is redirected to another socket providing said same service (column 8, lines 13-17, since the system assigns services based upon processor load the system may assign the service to a second socket).

However, Beliveau may not explicitly or implicitly disclose that said plurality of sockets are setup such that if one socket is full when a request is received said

request is redirected to another socket providing said same service. Even, if this is the case, it would have been obvious to one of ordinary skill in the art that, given Beliveau's teaching that redirection is assigned based upon round robin selection or may be enhanced to consider processor load, delays, or other factors (column 8, liens 13-17), that such a method of load distribution could and should be used. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau with a well known practice in the art (i.e., if a resource is busy, and there is a list of resources that can accomplish the same task, utilizing that list to find one that can do it and is not busy) in order to more effectively balance the load in Beliveau's distributed computing system.

18. As to claims 2 and 8, Beliveau discloses the invention substantially with regards to the parent claims 1 and 7, does not explicitly disclose responsive to receiving said incoming connection request for said first socket and all of said sockets in said list of sockets are full, dropping said connection request.

However, it would have been obvious to one of ordinary skill in the art that to drop a connection request if there are no available sockets to carry out the request, due to the fact that the request cannot be carried out. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of

Beliveau with a well known practice in the art (i.e., dropping unfulfillable requests) in order to more effectively balance the load in Beliveau's distributed computing system.

19. As to claims 3 and 9, Beliveau discloses responsive to receiving said socket option call, binding all of said sockets in said list of sockets to a same port number (column 8, lines 5-17, in the FTP example any incoming port 21 request is bound to the FTP servers in the socket list).

20. As to claims 4 and 10, Beliveau discloses each of said sockets in said list of sockets is distributed among said cluster of servers providing said same service (column 8, lines 13-17).

21. As to claims 6 and 12, Beliveau discloses:

binding all of said sockets in said list of sockets to a different internet protocol address (column 8, lines 5-13, different servers inherently have different IP addresses); and

responsive to redirecting said incoming connection request from said first socket to said second socket, replacing a requested internet protocol address to which said first socket is bound with a replacement internet protocol address to which said second socket is bound (column 8, lines 8-13).

22. Claims 5, 11, 13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beliveau as applied to claims 1 and 7, and in view Hopen et al (US Pub. No. 2005/0132030), hereafter "Hopen."

23. As to claim 13, Beliveau discloses a computer program product, residing in a computer readable medium, for redirecting connection requests at an operating system kernel level (Abstract and column 4, lines 55-61) comprising:

means for enabling receipt, from an application server, a socket option call with a list of sockets for informing an operating system kernel that all of the sockets in said list of sockets provide a same service (column 7, lines 62-column 8, line 17, a socket list is maintained which contains server socket information including service related information, e.g. there was the list of all FTP servers in the cluster of servers each having its own socket in the list);

means for controlling set-up of all of said sockets in said list of sockets to reference each other in said operating system kernel (column 8, lines 9-17, all sockets reference each other as they all perform the same service and are bound to the same port number);

means, responsive to receiving an incoming connection request for a first socket from said list of sockets that is full, for enabling redirection of said connection request to a second socket in said list of sockets that is not full (column 8, lines 13-17, if a socket if full, inherently, since the system assigns

services based upon processor load or delays, the system will assign the service to a second socket).

But, Beliveau does not explicitly disclose setting up a master-slave configuration is the distributed computing system. Rather, Beliveau makes not explicit suggestion as to the set up of the clustered servers.

However, Hoppen discloses a distributed computing system that utilizes a master slave configuration ([0002] and [0104], lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen in order to use a known implementation of distributed services that provides for easier management of the overall system.

24. As to claims 5 and 11, Beliveau discloses the invention substantially with regards to the parent claims 1 and 7, but does not explicitly disclose the cluster of servers implements a master-server configuration. Rather, Beliveau makes not explicit suggestion as to the set up of the clustered servers.

However, Hoppen discloses a distributed computing system that utilizes a master slave configuration ([0002] and [0104], lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen in order to use a known implementation of distributed services that provides for easier management of the overall system.

25. As to claim 15, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, and further disclose responsive to receiving said socket option call, binding all of said sockets in said list of sockets to a same port number (Beliveau, column 8, lines 5-17, in the FTP example any incoming port 21 request is bound to the FTP servers in the socket list).

26. As to claim 16, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, and further disclose:

means for enabling binding all of said sockets in said list of sockets to a different internet protocol address (Beliveau, column 8, lines 5-13, different servers inherently have different IP addresses); and

means, responsive to enabling redirection of said incoming connection request from said first socket to said second socket, for controlling replacement of a requested internet protocol address to which said first socket is bound with a replacement internet protocol address to which said second socket is bound (Beliveau, column 8, lines 8-13).

27. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beliveau and Hopen and in further view of what was well known in the art at the time of the invention.

28. As to claim 13, Beliveau discloses a computer program product, residing in a computer readable medium, for redirecting connection requests at an operating system kernel level (Abstract and column 4, lines 55-61) comprising:

means for enabling receipt, from an application server, a socket option call with a list of sockets for informing an operating system kernel that all of the sockets in said list of sockets provide a same service (column 7, lines 62-column 8, line 17, a socket list is maintained which contains server socket information including service related information, e.g. there was the list of all FTP servers in the cluster of servers each having its own socket in the list);

means for controlling set-up of all of said sockets in said list of sockets to reference each other in said operating system kernel (column 8, lines 9-17, all sockets reference each other as they all perform the same service and are bound to the same port number);

means, responsive to receiving an incoming connection request for a first socket, for enabling redirection of said connection request to a second socket in said list of sockets (column 8, lines 13-17, since the system assigns services based upon processor load the system may assign the service to a second socket).

But, Beliveau does not explicitly disclose setting up a master-slave configuration is the distributed computing system. Rather, Beliveau makes not explicit suggestion as to the set up of the clustered servers.

However, Hoppen discloses a distributed computing system that utilizes a master slave configuration ([0002] and [0104], lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen in order to use a known implementation of distributed services that provides for easier management of the overall system.

Further, Beliveau and Hoppen may not explicitly or implicitly disclose that the redirection of the incoming connection request occurs if the first socket is full and a second socket is not. Even, if this is the case, it would have been obvious to one of ordinary skill in the art that, given Beliveau's teaching that redirection is assigned based upon round robin selection or may be enhanced to consider processor load, delays, or other factors (column 8, liens 13-17), that such a method of load distribution could and should be used. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoppen with a well known practice in the art (i.e., if a resource is busy, and there

is a list of resources that can accomplish the same task, utilizing that list to find one that can do it and is not busy) in order to more effectively balance the load in Beliveau's distributed computing system.

29. As to claim 14, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, but do not explicitly disclose responsive to receiving said incoming connection request for said first socket and all of said sockets in said list of sockets are full, dropping said connection request.

However, it would have been obvious to one of ordinary skill in the art that to drop a connection request if there are no available sockets to carry out the request, due to the fact that the request cannot be carried out. Therefore, Official Notice (MPEP 2144.01) is taken that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Beliveau and Hoggen with a well known practice in the art (i.e., dropping unfulfillable requests) in order to more effectively balance the load in Beliveau's distributed computing system.

30. As to claim 15, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, and further disclose responsive to receiving said socket option call, binding all of said sockets in said list of sockets to a same port

number (Beliveau, column 8, lines 5-17, in the FTP example any incoming port 21 request is bound to the FTP servers in the socket list).

31. As to claim 16, Beliveau and Hoppen disclose the invention substantially with regards to the parent claim 13, and further disclose:

means for enabling binding all of said sockets in said list of sockets to a different internet protocol address (Beliveau, column 8, lines 5-13, different servers inherently have different IP addresses); and

means, responsive to enabling redirection of said incoming connection request from said first socket to said second socket, for controlling replacement of a requested internet protocol address to which said first socket is bound with a replacement internet protocol address to which said second socket is bound (Beliveau, column 8, lines 8-13).

Conclusion

32. For additional prior art made of record and not relied upon and considered pertinent to applicant's disclosure see attached Notice of References Cited, Form PTO-892.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas J. Dailey whose telephone number is 571-270-1246. The examiner can normally be reached on Monday thru Friday; 9:00am - 5:00pm.

34. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

35. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TJD
7/31/2007

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8/2/7